

Clonal Forestry: Out of the Lab, Finally

John Pait¹

After 50 years of breeding and orchard production of southern pines, the full realization of genetic improvement is just now arriving in the form of clonal forestry. Several thousand acres of clonal loblolly pine have been planted in the last three years following decades of research at significant costs. Planting loblolly clones will increase by at least an order of magnitude in the next five years. Key drivers for this trend include gains in yield and disease resistance, quality traits, uniformity, speed of deployment per breeding cycle and the development of cost-effective production systems. The dominant business model will be that of a technology provider using a somatic embryogenesis production system funded by private sector investment, infused by cooperative and partnership breeding, and seamlessly delivering elite genetics to forest landowners in the form of planting stock. Clone trials to date indicate substantial gains, high heritabilities, and low levels of G x E. Longer term stand level research for accurate growth and yield prediction and silviculture optimization is still needed. Given the extraordinary gains and higher costs of clonal stock, forest managers have unique opportunities and decisions ahead. The historical value model of the US South in which most of the financial value created by breeding and testing flows to the landowner and almost none flows to the breeder-developer will change. Forest information systems will need to spatially track genotype planting for proper future valuation. Similarly, clonal deployment decisions must take place on a landscape scale, spatially and temporally, to supply the data necessary for forest health and stand development monitoring.

¹ Sr. Vice-President, CellFor Corporation, Atlanta, GA